

# MONTHLY WEATHER REVIEW.

Editor: Prof. CLEVELAND ABBE.

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## INTRODUCTION.

The MONTHLY WEATHER REVIEW for July, 1898, is based on about 2,940 reports from stations occupied by regular and voluntary observers, classified as follows: 147 from Weather Bureau stations; numerous special river stations; 32 from post surgeons, received through the Surgeon General, United States Army; 2,583 from voluntary observers; 96 received through the Southern Pacific Railway Company; 29 from Life-Saving stations, received through the Superintendent United States Life-Saving Service; 31 from Canadian stations; 20 from Mexican stations; 7 from Jamaica, W. I. International simultaneous observations are received from a few stations and used, together with trustworthy newspaper extracts and special reports.

Special acknowledgment is made of the hearty cooperation of Prof. R. F. Stupart, Director of the Meteorological Service of the Dominion of Canada; Mr. Curtis J. Lyons, Meteorologist to the Hawaiian Government Survey, Honolulu; Dr. Mariano Bárcena, Director of the Central Meteorological and Magnetic Observatory of Mexico; Mr. Maxwell Hall, Government Meteorologist, Kingston, Jamaica; Capt. S. I. Kim-

ball, Superintendent of the United States Life-Saving Service; and Commander J. E. Craig, Hydrographer, United States Navy.

The REVIEW is prepared under the general editorial supervision of Prof. Cleveland Abbe.

Attention is called to the fact that the clocks and self-registers at regular Weather Bureau stations are all set to seventy-fifth meridian or eastern standard time, which is exactly five hours behind Greenwich time; as far as practicable, only this standard of time is used in the text of the REVIEW, since all Weather Bureau observations are required to be taken and recorded by it. The standards used by the public in the United States and Canada and by the voluntary observers are believed to generally conform to the modern international system of standard meridians, one hour apart, beginning with Greenwich. Records of miscellaneous phenomena that are reported occasionally in other standards of time by voluntary observers or newspaper correspondents are sometimes corrected to agree with the eastern standard; otherwise, the local meridian is mentioned.

## FORECASTS AND WARNINGS.

By Prof. F. H. BIGELOW, in charge of Forecast Division.

The weather conditions in the month of July were generally quiet, with high temperature, frequent thunderstorms, and the usual stagnant circulation prevailing in the summer.

### WIND SIGNALS.

No hurricanes developed on the south Atlantic or Gulf coasts. On the 11th, 12th, and 13th the conditions were threatening in the east Gulf States, and information telegrams were sent to those districts, but no storm signal orders were issued. During this period an area of increasing high pressure passed over the Lake region and New England, and on the evening of the 12th was central over the Gulf of St. Lawrence. The winds were moderately high during the evening. In the morning Atlantic City showed a pressure of 29.98 inches with the surrounding stations at 30.10 to 30.20 inches, and high winds on the New Jersey coast. Warnings were issued for the north Atlantic and New England coasts. The storm was of small dimensions, and filled up very generally, so that the 10 a. m. observation gave 30.10 at Atlantic City. This storm was attended by high winds near New York and on the southern New England coast, but it passed off to the east by night. The maximum velocities noted were Atlantic City, 42; Sandy Hook, 60; New York, 36; Block Island, 60; Boston, 32. Heavy rain fell in southern New England. These small storms are apt to form suddenly, near the north Atlantic coast, when a high is central over the Gulf of St. Law-

rence and extends southwestward over the Atlantic States. In addition to the generally high northeast winds along the coast line, the pressure gradients sometimes give way and form a minor cyclonic whirl along the edge. These small storms develop rapidly, and it is very difficult to foresee their occurrence, as there is no onward propagation of the storm center. On the evening of July 19, a low area was located over Lake Superior, and a series of thunderstorms developed over Lake Michigan with high winds, 40 to 50 miles, at several stations. Warnings of thunderstorm squalls were issued for the lower Lakes. The storm, however, passed to the northward, with only one heavy wind, 52 miles being reported at Cleveland. No other storm warnings were issued by the Washington office during the month of July.—F. H. Bigelow, Professor.

### THUNDERSTORM FORECASTS.

During July there occurred only the average number of thunderstorms appropriate to this month, and they were usually well covered in the forecasts. There are only two or three circumstances needing any special comment. Since the forecasts cover in general rather large districts, such as an entire State, indicating only that conditions are favorable for thunderstorms, and since the storms themselves are comparatively small in their dimensions, it often happens that such storms occur within a State but not at the Weather Bureau stations, which are, necessarily, on the average, about